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Assessing Online Collaborative Discourse

Henny Breen
Linfield College - Portland Campus Nursing & Online and Continuing Education

ASSESSING ONLINE COLLABORATIVE DISCOURSE

By Henny Breen, PhD, RN, CNE, COI

Linfield College Good Samaritan School of Nursing

Email: hbreen@linfield.edu

ABSTRACT

Purpose

This qualitative study using transcript analysis was undertaken to clarify the value of Harasim's Online Collaborative Learning Theory as a way to assess the collaborative process within nursing education. The theory incorporated three phases: (1) idea generating; (2) idea generating; and (3) intellectual convergence.

Method

The transcripts of asynchronous discussions from a two-week module about disaster nursing using a virtual community were analyzed and formed the data for this study.

Findings

This study supports the use of Online Collaborative Learning Theory as a framework for assessing online collaborative discourse. Individual or group outcomes were required for the students to move through all three phases of the theory.

Discussion/Conclusion

The phases of The Online Collaborative Learning Theory could be used to evaluate the student's ability to collaborate. It is recommended that group process skills, which have more to do with interpersonal skills be evaluated separately from collaborative learning, which has more to do with cognitive skills. Both are required for practicing nurses. When evaluated separately, the student learning needs are more clearly delineated.

Keywords: nursing education, online education, transcript analysis, collaboration

Assessing Online Collaborative Discourse

This paper describes a study that was conducted to examine Harasim's (2007) Online Collaborative Learning Theory as a framework for assessing online collaborative discourse in a registered nurse (RN) to baccalaureate degree (BS) program. Collaborative learning is a pedagogical approach that is congruent with the curriculum reform that is taking place within nursing education today. This curriculum reform involves a paradigm shift from content to a concept driven curriculum to better prepare nursing students for today's healthcare environment. This shift involves faculty becoming facilitators of learning in which collaborative learning is emphasized, rather than deliverers of content in which students are passive learners (Billings & Halstead, 2009; Giddens et al., 2008). Collaborative learning advances active and reflective learning and encourages teamwork, which provides opportunities for students to become accountable for their own and others' work (Billings & Halstead, 2009). These attributes are required of practicing nurses, as nurses must be able to collaborate with other nurses and professionals.

According to the *American Nurses Association Scope and Standards of Practice*, collaboration is defined as "a professional healthcare partnership grounded in reciprocal and respectful recognition and acceptance of: each partner's unique expertise, power, and sphere of influence and responsibilities…" (American Nurses Association, 2010, p. 64). Gardner (2005) makes the point that true collaboration is seldom practiced due its complexity and the level of skills required. Collaboration is conceptualized as a dynamic process in which the group moves through different developmental stages. At the same time, collaboration is also seen as an outcome, in which there is a merging of different perspectives to understand complex problems for the purpose of coming to a solution (Gardner, 2005).

There is a renewed emphasis on collaboration in all health care disciplines requiring educators to ensure collaboration is addressed in the curriculum. In the document that defines the essentials of baccalaureate education for professional nursing practice, the American Association of Colleges of Nursing (2008) identified intra and interprofessional collaborative skills as critical to providing safe evidence based patient care. Collaborative skills are essential to nursing practice and their development begins during nursing education.

Collaborative learning has its roots in constructivism. A foundation in constructivism was the most commonly noted antecedent for collaboration in the online learning environment (Breen, 2013). Constructivism as a philosophy refers to the nature or epistemology of learning whereas constructivist-learning theory refers to how people learn. The understanding of the effectiveness of collaborative learning evolved from constructivist learning theory and has become a valued approach to teaching (Harasim, 2012; Thompson & Ku, 2006; Vallance, Towndrow, & Wiz, 2009). Constructivist learning theory suggests that learning is an active process in which learners make meaning of new information and construct new knowledge through experience and reflection upon that experience (Harasim, 2012; Jahng, Nielsen, & Chan, 2010).

To maximize the impact of the learning experience, it is important for faculty to be able to differentiate between cooperation and collaboration. Collaboration and cooperation are most often used interchangeably. However, Tutty & Klein (2008) placed collaboration and cooperation on either end of a continuum whereas Harasim (2012) identified cooperative learning as a division of labor and collaboration as co-labor. Breen (2013) defined virtual collaboration as "an interdependent and democratic online group process grounded in constructivist pedagogy in which students debate and reflect on shared knowledge, to construct

new understanding of relevant information". The design of an online collaborative course is

structured to provide opportunities for the students to construct or build knowledge as a group

towards a common goal. This is in contrast to cooperative group learning in which students work

independently on a part of a project to contribute to the final product rather building knowledge

together. When collaborating, they are working together so that the final product is better than

any one person could do on their own (Harasim, 2012).

Very little research was found on the actual process of collaboration. There have been a

number of studies that examined the outcomes of online collaborative learning such as learner

completion rates, learner satisfaction, differences between online and face-to-face learning,

cognitive, social, and teaching presence, interactivity, and more recently learning outcomes

(Oncu & Cakir, 2011; De Wever, Schellens, Valcke, & Van Keer, 2006; Dennen, 2008).

Menchaca & Bekele (2008) in their study of success factors of both learner and instructor

recommended that "the quality and nature of online collaboration…..be further examined" (p.

249). Enhancing learner engagement and collaboration have been identified as priorities for

research in online learning environments. In order to meet this goal, one area of study is

investigating the patterns that enhance effective collaboration among online learners (Oncu &

Cakir, 2011). Given the proliferation of online learning within nursing education, it is

imperative that this modality of learning be closely examined to ensure that the outcomes for

nursing education are met.

There have been a number of studies done using different instruments in an effort to

conduct a quantitative content analysis of online asynchronous discussion groups. These

instruments differed in their theoretical orientation, level of detail and type of analytical

categories used. As a result, there is a weak empirical base for the validity of the instruments

developed to date due to a lack of coherence between the theoretical base and the operational

translation of the theory in the instruments (De Wever et al., 2006; Dennen, 2008). A review of

fifteen content analysis schemes to analyze transcripts of online asynchronous discussion groups

found that standards had not yet been established in spite of this technique being frequently used

(De Wever et al., 2006). Given this finding, a qualitative study using transcript analysis to

examine Online Collaborative Learning Theory was undertaken for the purpose of understanding

the usefulness of this theory for the assessment of collaborative discussions in nursing education.

Online Collaborative Learning Theory

Harasim's Online Collaborative Learning Theory was developed from a grounded study

and has three processes or phases, which describe a path from divergent to convergent thinking

(Harasim, 2007). These three phases include idea generating, idea organizing and intellectual

convergence.

Phase One: Idea generating

This phase refers to divergent thinking within a group. It may involve brainstorming,

talking, or writing it out. Ideas are shared and information is generated. It is a democratic process

as different perspectives are shared from group member's personal observations and experiences.

Phase Two: Idea organizing

As group members share different ideas, they begin to seek clarification. In comparing

and contrasting the different ideas, they are organized according to their similarities to one

another. It involves selecting the strongest ideas and weeding out the weaker ones. This phase is

the beginning of group members acknowledging and recognizing different perspectives. They

begin to identify how the different perspectives relate or not to one another and the topic. In this

phase, there is a beginning movement towards convergence.

Phase Three: Intellectual convergence

Convergent thinking requires the ability to narrow down the options based on the information they have and analysis of that information so that the best ones are applied. During this phase, there is shared understanding as intellectual synthesis occurs. Group members in the discussion either agree to disagree or co produce a product, which could be anything from a solution to a problem, a design, an assignment, theory, publication, or work of art.

Method

This qualitative study investigated the collaborative process by identifying empirical evidence of collaboration in an online class in which RN to BSN students were working on a virtual case study in a learning module on disaster management.

Design

Transcript analysis was the qualitative method used for this study, as it is a valuable methodology to study asynchronous online educational discourse (Garrison, Cleveland-Innes, Koole, & Kappelman, 2006). Transcript analysis refers to a system for making replicable and valid inferences from texts to the contexts of their use. The three phases of Harasim's Online Collaborative Learning theory provided the basis for the analytical constructs for the study. The transcripts were from a two-week discussion about nursing following a disaster in a virtual community.

The Neighborhood, which features the unfolding stories of several characters representing community and nurse members, was used as the virtual community. The stories are enhanced with pictures, video clips, medical records, and newspaper clippings (Giddens, 2010). Students were required to become familiar with several members of the community in the weeks preceding an announcement in the course management system, *Blackboard Learn*, that an

earthquake had struck *The Neighborhood.* Videos and articles about earthquakes were added to the module. During that first week, each student produced a nursing action plan, as they were role-played being a community health nurse in the community. For the second week, the class was divided into four smaller groups in which they developed a more comprehensive nursing action plan together.

Setting and Participants

The setting for the study was a fully online RN to BSN program offered through the School of Nursing and Adult Education Program in a small northwest liberal arts college in the United States. Participants for the study were nineteen (19) Registered Nurses enrolled in their final nursing course during the summer of 2012. This student group represented different generations and came from a variety of nursing backgrounds with varying years of experience. This diversity provided a rich community of learners for baccalaureate nursing education built on a philosophy of constructivism.

This sample was also chosen as these students had experience working collaboratively from their work in earlier courses. In the studied RN to BSN program, the curriculum is carefully scaffolded to move the students towards meeting the program outcomes, which include communicating effectively and collaboratively in professional practice as well as providing effective nursing care that incorporates diverse values. In their first level courses, students were required to work in groups in which collaboration and cooperation were introduced as different concepts. The expectation is that students are able to move from cooperative to collaborative work as they progress in the program. Given that collaboration is not easily achieved, it was decided that using transcripts of asynchronous discourse from students who have developed

some skill in collaboration would provide an appropriate sample to study the collaborative

process.

Data Collection, Coding, and Analysis

The college used *Blackboard Learn* as the platform for online courses from which the data

was extracted and placed into an excel spreadsheet for coding. Data for the study consisted of

discussion board transcripts over a two-week period from five different discussion forums. The

first week involved all nineteen students collaborating together in one forum consisting of two

discussion threads. One discussion thread was for role-playing being community nurses and the

other discussion thread was for posting their individual case studies and providing feedback to

each other. For the second week, the class was divided into four smaller groups of four or five

students to make up the remaining four forums. Each of these forums had a discussion thread to

collaborate and a file exchange in which they could develop their final group nursing action plan.

Each discussion post was used as a unit of analysis and was coded into the most relevant

category of Harasim's three phases of collaboration. It was also recognized that there was a

possibility that a single post might display characteristics or indicators of more than one of the

analytical constructs. Anderson, Rourke, Garrison, & Archer (2001) found that this procedure

had the advantage of being more efficient and provided more meaningful information as the

percentage of total posts that were contained in each of the categories was reported. This method

for determining the unit of analysis was used for this study as it was considered to be a valuable

method given the chosen theoretical framework had defined indicators. Further, Harasim (2012)

noted that it is the nature and quality of the posts that are the key indicators and these indicators

can be customized according to the assignment.

The number of posts in these discussions allowed for a rich database, which was used for the analysis guided by the Online Collaborative Learning theory indicators. Table 1 presents how the data was analyzed using the theory. Using a theoretical framework situates the analysis and does not exclude inductively derived insights gained through the transcript analysis (Rourke, Anderson, Garrison, & Archer, 2001). A constant comparative analysis method was used in the analysis of the data. This involved taking one unit of analysis and comparing it to all other units of analysis to see what made it different or similar. An excel database was created to support the coding process. The message texts (posts) were numbered and individually placed in a comment folder in a cell identified by a letter code representing a student name. In addition separate columns were created for the date and time of the post, the three phases of the theory, and comments. The comments field was used to capture the coder's notes about the posts and potential inductively derived inferences.

Reliability and validity issues are related to the rigor of the theoretical frameworks, models and coding schemes designed to guide the analysis of transcripts (Krippendorff, 2013; Garrison et al., 2006). A sound theoretical framework such as The Online Collaborative Learning Theory addressed potential validity issues. Harasim has been focusing on online education since the late 1980's and the three phases of collaboration came from a grounded theory study she conducted. Reliability was addressed by checking the coding at two intervals with three weeks separating them and the 80% code-recode reliability according to Miles and Huberman (1994) was reached. A colleague was also asked to code 25% of the all the data. Areas of disagreement were discussed and a 100% agreement was reached.

Ethical Considerations

Informed consent had been obtained by email as directed by the Institutional Review Board of the university where the students were enrolled. Using student numbers in the coding program and substituting names for any quoted postings protected anonymity. One area of concern may be related to the participants having been students of the researcher. This concern was alleviated by the fact that at the time of the analysis the researcher was no longer their faculty member as the students had completed the final nursing course for the RN to BSN program.

Findings

The transcripts that were studied represented five different forums related to the disaster case study over a two-week period. The first week involved all nineteen students collaborating together in one forum. There were at total of 154 posts coded during the first week in which students role-played being nurses in the community following an earthquake. In addition, they each developed a nursing action plan and provided feedback to each other. For the second week, the class was divided into four smaller groups to make up the remaining four forums. There was an average of 75 posts in each small group forum as they worked together to develop one nursing action plan to respond to the needs of agreed upon members of the virtual community. All five forums had evidence of moving through the three phases of Harasim's Online Collaborative Learning Theory. No inductive inferences evolved from the analysis.

Week One (Entire Class)

The students placed themselves as community health nurses in the virtual community experiencing the disaster. Throughout this forum they provided their assessment of their client needs, what the priority issues were for their clients and the community, the available resources, method of communication, means of transportation and their location and what they were doing

to help. One student identified herself as a team leader of a triage center. Table 2 shows the

percentage of messages in each of the three phases.

      Phase 1. Indicators that were coded as idea generating included participants being

engaged and contributing, divergent thinking with new ides generated, personal understanding,

and providing examples. Students presented new evidence based on personal experience, the

virtual community information and information from the literature. Citations from the literature

and examples to illustrate their points reflected personal understanding. An example of divergent

thinking that was not linked to another member's contribution was "What are our lab

capabilities? Are we able to run labs on Yvonne to assess renal status?" Another example was a

lengthy post by a student who provided information comparing Hurricane Katrina to the

Japanese tsunami in terms of looting and cautioned the team to be aware of this, expressing

safety concerns.

      Phase 2. Indicators of idea organizing include idea linking, identifying associations

between ideas, ideas becoming clarified and grouped into various positions, and movement from

individual comments to collaboration. Phase 2 indicators are noted in the following post.

      Tyler's whereabouts are definitely a priority [agreement with previous posts] considering

      the mental well being of Mark as well as Randall for Yvonne. Both of these individuals

      are under a lot of stress prior to the earthquake [information from the virtual community]

      and that has substantially increased with this event. In an article written by Margaret

      Cole Marshall there are 5 lessons learned from Hurricane Katrina and Rita….

The student goes on to provide information from the article reflecting personal understanding,

which is a phase 1 indicator. Phase one and phase two indicators were often seen in the same

message.

Phase 3. Intellectual convergence is characterized by synthesis of ideas and co-construction of knowledge based on shared understanding and ideas for action. This was noted when a student posted a comment that was identified as going out to all disaster team members.

> There seems to be a general consensus that community members are searching for missing family members. The Neighborhood High School has been designated as a safe shelter. If you are looking for missing family members, please refer all community members to this location. There is a Healthcare Disaster Team member that will be logging who has arrived at this location. [Student name] RN

In summary, idea generating and then moving on to idea organizing included indicators in which the students shared ideas by adding new information to build on the role-play, linking similar ideas, and statements of agreement. Movement to intellectual convergence was noted when students provided an update bringing together the information that had been shared and plans for action that would be needed to provide care. The three phases did not occur in as circular process, but tended to be one of continual movement advancing based on a feedback spiral. For example, the phase of idea organizing may move directly to intellectual convergence or it may trigger further idea generating (Harasim, 2012). Several themes or topics came up in the discussion that students built on using their imagination, the literature and the data from *The Neighborhood.* Some of the topics included:

1. Communication with comments about who had cell phones, cell phone batteries dying, having access to ham radios, loss of Internet access, and asking others to contact the hospital.

2. Missing persons from the community were designated as a priority because of the need to alleviate the stress experienced by family members. This was agreed upon.

3. Resources such as the role of the Red Cross, FEMA, and the Coast Guard were researched and discussed.

4. Triage and transportation – a student looked up information and provided information about START (simple triage and rapid transport). There was a discussion about how to transport Mark and they agreed he needed transport by helicopter because of his declining condition.

5. Treatment – issues related to supplies, oxygen for Jimmy Bley, electricity, generators, lessons learned from other disasters and whether people needed a safe shelter (they set up the high school to be the safe shelter); triage (assisted living center was set up for this) or hospitalization (discussion about what the hospital could do and which patients they could accept).

6. Loss – some members of the community died including one of the volunteer nurse's family members. She was Jewish and there was a discussion about Jewish cultural practices when there is a death. There was also a discussion about debriefing, supporting each other and their clients and self care.

Week Two: Group Forums

All four groups had evidence of moving through all three phases of The Online Collaborative Learning Theory. Examples are taken from different groups to illustrate this evidence.

Phase 1. Idea generating included posts that referred to the work they did on their individual care plan reflecting individual points of view with some new ideas. For example, "Tracie was in college …This would be another place for shelter as colleges are usually prepared for disasters and have stadiums or large structures to house people…."

Phase 2. Once students had shared information from their individual care plans, students moved quickly into the phase of idea organizing. They demonstrated early forms of convergence as they contributed to shared ideas, had agreement and disagreement statements, and weaved ideas together and increasingly referred to each other by name. Some examples include: "Hi [student name]….Is there any need to mention immunizations?" "[group member names], I was thinking for the assessment, while we are assessing for anxiety, we should also assess Mark's depression. I also agree about the immunization as Tyler was behind….".

Phase 3. Intellectual convergence was evident in the following post in which the student synthesized several post. "I was thinking of using a combination of our initial openings and then follow the family details. Here is what I got from our posts…….". Shared understanding was exemplified in the following post.

> I agree with [student name] assessment that the Bleys are vulnerable due to their age and Jimmy's chronic respiratory condition…without adequate medications, food, and water, the health conditions can deteriorate rapidly. As [other student name] had indicated, the Bley's strong family ties are strength and rejoining them will decrease their vulnerability.

Group Structure. Groups one and two set up a separate thread for each part of the nursing action plan which lent itself to a very similar pattern for each thread. Examples of subject headings for these threads included community resources, references, prioritization of physical and psychological needs, short and long term goals and assessment data. Each thread started with phase one, then moved to phase two followed by phase three as they took the information provided by the group members and made final decisions for each part of the nursing action plan, finally resulting in closure of the discussion.   The final care plan was developed with no more than three drafts.

By contrast groups three and four did not separate parts of the nursing action plan into separate threads. They had more drafts of the nursing action plan synthesizing the information gained (phase 3) which led to more idea generating before they settled on their final nursing action plan. One can posit that the pattern of moving through the phases of the theory may be related to how the discussion threads were set up by the group members and did not influence the ability to move through the phases.

Group Process. In coding the group discussions, it was noted that several of the posts did not have any of the indicators that are foundational to Harasim's Online Collaborative Learning Theory. The three phases of the Online Collaborative Learning Theory relate to the process of collaborative learning and building knowledge through discourse (Harasim, 2012). The posts that were not coded as one of the three phases were coded as group process. Group process was narrowly defined to include posts that discuss how to set up the group, directions, availability, expressions of support, frustration, and social comments such as "thank you" and "good job".

Three of the groups worked well together with no apparent conflict. One group did face some challenges in working together as reflected in the following post, "… we are all busy but this is a group assignment. I managed to squeeze in time and log on several times in between my busy day as well and stayed up until 1 am after working a morning shift…" Even with these group process challenges, they were still able to move through all the phases of The Online Collaborative Learning Theory and produce a good final product.

Table 3 shows the total percentage of group process indicators and messages in each of the three phases for the four small groups. The total percentage of messages in the three phases for the class as a whole is also included for comparison purposes.

Discussion

The main purpose of this study was to examine Harasim's Online Collaborative Learning Theory as a framework for assessing online collaborative discourse. The transcript analysis provided empirical evidence of moving through all three phases of the theory in both the class and small group discussions. The most striking difference between the class and small group forums was the number of process indicators. These indicators were only present in the small groups. This is probably related to the fact that there was no group project or outcome required for the class discussion as there was in the small groups. Collaborating for the purpose of producing a group assignment requires decisions to be made about how students will work together. There was no need to discuss these issues when working on an individual assignment. These findings suggest that group process indicators may not be required for collaboration to occur and reinforces the chosen theory. This finding is contrary to the findings of the concept analysis of virtual collaboration, which found that group process was an antecedent to collaboration (Breen, 2013).

Harasim's Online Collaborative Learning Theory differs from other theoretical models, which placed collaboration on a continuum from social presence to production such as Murphy's (2004) model. Many of the social presence indicators found in Murphy's study were similar to those labeled as group process indicators in this study. For example, references to working together as a group, expressions of appreciation for contributions made, and expressing emotions such as feeling overwhelmed were found in this study as well as in Murphy's study. Given that these process indicators were not found in the class discussion suggest not including them in a theoretical model of collaboration. Further, there does not seem to be any relationship between the number of group process indicators and reaching intellectual convergence. Groups three and

four had the most group process indicators and group two had the most intellectual convergence indictors. In comparing the way the groups set up their forums, groups one and two set up specific threads addressing the different parts of the nursing action plan whereas groups three and four had one thread to address the nursing action plan. Again, this did not impact the number of intelligence convergence indictors.

The class discussion had the most phase 2 (idea organizing) indicators. This was probably related to the fact that there was no dependency on each other to develop their final product leaving more time to contribute to each other's ideas without having to come to any group decisions on the final assignment. Intellectual convergence was mostly noted in their individual nursing action plans. Co construction of knowledge was evident in that their individual action plans were different than they could have done on their own. Their action plans reflected the synthesis of ideas from their discussion in the role-play.

No other indicators that reflect collaboration were inductively derived from analysis of the transcripts suggesting that the theory provides a good framework for evaluating collaboration if the group process indicators are seen as separate from collaboration. Three relevant findings to suggest separating group process from the collaborative process include: (1) group process indicators were not required to move through the phases of The Online Collaborative Learning Theory if an individual outcome was required; (2) the number of group process indicators did not seem to impact the movement through the phases; and (3) conflict and unequal participation did not prevent a group from moving through the three phases of the theory.

It is recommended that group process and collaboration be assessed separately. Doing so would facilitate purposeful assessment of cognitive and affective domains of learning to enable targeted areas for student development depending on the outcome of the evaluation. Harasim

(2007) recommends that a grading rubric address the quality of posts by including such elements as citations, adding new insights, posing new ideas and questions, and building knowledge measured by moving through the three phases of the theory. Including citations and adding new insights from reading the course content, research outside the course content and personal experience are common features of discussion grading rubrics. Using a grading rubric that incorporates the theory would enhance the evaluation of the student's ability to meaningfully contribute to the collaborative process. It would provide the instructor with the ability to assess the student's skill and growth. For example, a student may be strong in generating new ideas but needs to develop skill in identifying associations between ideas. This would also have the potential of furthering the understanding of how collaboration is different from cooperation.

Conclusion/Recommendations

No other nursing studies were found that used The Online Collaborative Learning Theory. This study may be the first to use it in nursing. This study offers a way to evaluate the students' collaborative skills. The following recommendations are based on the findings and analysis of this study and are related to the use of Online Collaborative Learning Theory (OCL) in RN to BSN education. This is followed with recommendations for further research.

Online instruction

The following recommendations for online instruction are offered.

1. For some individual assignments, a class discussion regarding the assignment could be set up prior to the students submitting the assignment. This is related to the finding that the students moved through all three phases only if an outcome was required. This would be appropriate for assignments in which input and feedback from classmates in addition to

personal research would facilitate the development of being able to merge different perspectives.

2. Although not a direct finding of this study, it is recommended that faculty consider how they scaffold their programs and courses to facilitate the students learning how to collaborate. This would facilitate how prescriptive to be in setting up collaborative activities and how involved the faculty member needs to be in the discussion. For example, students new to collaborative learning need help in understanding how collaboration is different from working together cooperatively. They may also need help in structuring their discussion forums.

3. When groups are brought together to develop a group outcome, the instructor needs to keep an eye on the group process and may need to provide assistance if the group dynamics are interfering with their ability to work together. Knowing when to step in and when to leave the group to work through conflict on their own needs to be carefully considered. The instructor needs to take into consideration the learning objectives of the group assignment and experience of the students with online learning and group work.

4. Consider the use of role-playing as a different approach to learning. Although, not the focus of this study, it was found to be an engaging strategy for immersing the students in collaborative work.

5. The virtual community was found to be an interesting avenue for engaging students in the collaborative process and is recommended for use in exploring complex concepts.

Evaluation

In evaluating a group's ability to collaborate, it is recommended that the phases of The Online Collaborative Learning Theory be used to evaluate the group and/or individual students'

ability to collaborate. Group process skills should be evaluated separately. Group process has more to do with interpersonal skills whereas collaborative learning has more to do with cognitive skills. Both are required for practicing nurses. When evaluated separately, the student learning needs would be more clearly delineated.

Further Research

Given the findings of this study, it is recommended that further studies be done that investigate the relationship between group development and the collaborative process. Other recommendations include the following.

1. A study to closely examine the role of the instructor in facilitating the collaborative process to facilitate understanding best practices for instruction in the online environment as related to collaborative learning with nursing students.

2. To further enhance the understanding of the value of this theory for nurses; it is recommended that a study be conducted looking at conceptual change. This is particularly important given the change from content to concept driven curriculums in nursing.

3. Given that nursing is a practice discipline, it is recommended that a study be conducted investigating how engaging in collaboration online impacts the nurse's ability to collaborate in practice.

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Table 1.

The Online Collaborative Learning Theory guides the analysis of the data. These characteristics and indicators are based on Harasim's theory and customized based on the case study in the course module (Harasim, 2012).

The Coding Tool

Idea Generating	- Divergent thinking - Individual points of view presented leading to multiple perspectives - New ideas generated - Participants are engaged and contribute - Democratic participation - Number of initial postings - Personal Understanding - Providing examples - Use of "I" "my"
Idea Organizing	- Idea linking - Identifying associations between ideas - Ideas become clarified and grouped into various positions - Movement from individual comments to building on previous comments - Early form of convergence as participants contribute to shared ideas - Increased number of references to previous messages - Increased number of references to other participants by name - Number of agreement & disagreement statements; shared understanding; weaving ideas together
Intellectual Convergence	- Shared Understanding - Synthesis of Ideas - Co-construction of knowledge based on shared understanding - Discussions leading to conclusion on plans or ideas for action - Increased number of substantive contributions (messages that compare, structure, extend, and synthesize ideas) - Number of conclusive position statements - Development towards shared understanding - Working towards closure - Use of "we", "our"

Table 2.

Percentage Distribution of Online Collaborative Learning Phases during Week 1

Day	Posts	Posts with Phase 1 Indicators	Posts with Phase 2 Indicators	Posts with Phase 3 Indicators
Day 1	8 posts	50%	75%	25%
Day 2	28 posts	39%	71%	21%
Day 3	26 posts	15%	81%	31%
Day 4	21 posts	0%	81%	19%
Day 5	25 posts	16%	92%	8%
Day 6	35 posts	11%	57%	43%
Day 7	11 posts	27%	64%	45%

Table 3.

Percentage Distribution Comparing Entire Class and Small Group Discussion

Day	Posts	Posts with Phase 1 Indicators	Posts with Phase 2 Indicators	Posts with Phase 3 Indicators	Group Process Indicators
Class	154 posts	19%	74%	27%	0%
Group 1	80 posts	18%	25%	26%	34%
Group 2	56 posts	11%	41%	21%	30%
Group 3	84 posts	17%	27%	15%	57%
Group 4	73 posts	10%	40%	14%	40%